

REMARKS

Applicant respectfully submits that entry of the claims is proper because the claims will either place the application in condition for allowance or in better form for appeal.

Claims 1-3, 5-7, 9-15, 17-19, 21, 22, 24-27, 29-31, and 33-41 are pending in the application. Claims 1-3, 5-7, 9-15, 17-19, 21, 22, 24-27, 29-31, and 33-35 are currently amended; claims 4, 8, 16, 20, 23, 28, and 32 are canceled; and new claims 36-41 are added.

Applicant further respectfully submits that no new matter is added to the currently amended claims.

Claims 1-35 stand rejected under 35 U.S.C. §101.

Claims 1-10 stand rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 5,392,388 to Gibson in view of U.S. Patent No. 6,396,837 to Schirmer.

Claims 11-23 stand rejected under 35 U.S.C. §103(a) as unpatentable over Gibson in view of U.S. Patent No. 5,706,388 to Blades and further in view of Schirmer.

Claims 24-35 stand rejected under 35 U.S.C. §103(a) as unpatentable over Gibson in view of Blades.

Applicant respectfully traverses the rejections based on the following discussion.

I. The 35 U.S.C. §101 Rejection

Independent claims 1 and 12 are currently amended to recite in relevant part, "A method of displaying a spiral scrollbar, said method comprising:", while dependent claims 2, 3, 5-7, and 9-11, which depend from independent claim 1, and dependent claims 13-15, 17-19, 21, and 22, which depend from independent claim 12, are currently amended to recite in relevant part, "A method". The rejection of canceled claims 4, 8, 16, 20 and 23 is moot.

In regard to independent method claim 24 and dependent claims 25-27, 29-31, and 33-35, which depend from independent claim 24, Applicant respectfully asserts, for the reasons outlined below, that the present invention uses a computer-related process limited to a practical application, i.e., readily accessing an item from a large list of items represented by a spiral scrollbar on a graphical user interface, in the technological arts. (See, MPEP 2606 IV, B, 2, (b),

ii), Computer-Related Processes Limited to a Practical Application in the Technological Arts).

The problem of accessing a single item with a conventional scrollbar is described in paragraph [0009] of the Specification, "However, suppose that $L_y = 1,048,576$ pixels, $W_y = 512$, and $c_y = 64$ pixels. If the user moves the [conventional linear] scrollbar by one pixel ($da = 1$), the document will scroll by almost 2,340 pixels ($db = 2,340$). This also means that a large portion of the document ($2,340 - 512 = 1,828$ pixels) is not shown to the user at all. The fact that the [conventional] scrollbar 1 is linear and limited in size makes it impossible to scroll large document 15, because some portions of the document will not be shown to the user."

The present invention overcomes the above-described problem by using a computer-related process, i.e., a spiral scrollbar on a graphical user interface, to access a single desired item or desired line of a document by the user. Therefore, Applicant respectfully submits that independent claim 24 and dependent claims 25-27, 29-31, and 33-35 complies with 35 U.S.C. §101 regarding patentable subject matter for computer-related invention. The rejection of canceled claims 28 and 32 is moot.

For at least the reasons outlined above, withdrawal of the rejection of claims 1-35 under 35 U.S.C. §101 is respectfully solicited.

II. The Prior Art Rejections

A. The 35 U.S.C. §103(a) Rejection over Gibson and Schirmer

1. The Gibson Reference

a. Gibson's Disclosure

Gibson discloses a method and system for displaying a substantially circular icon, having a defined periphery. Each portion of the defined periphery corresponds to one or more of the segments making up a panoramic image. A movable control element is displayed along a selected arc about the periphery. One or more of the segments of the panoramic image corresponding to each portion of the defined periphery within the selected arc may then be selected and is displayed on the display device by manipulating the position of the moveable control element. (col. 2, lines 44-54, which includes the citation by the Office Action).

Figs. 4 and 5 illustrate Gibson's scrollcurve graphic interface. (See also, col.5, line 14 to

col. 6, line 47).

Currently amended, independent claim 1 recites in relevant part,
"corresponding an entire ordered list of items in a computer application to a spiral trough
of said spiral scrollbar

...

wherein rotating said thumb region inwardly on said spiral trough allows more rapid
scrolling through said entire ordered list, when compared to rotating said thumb region
outwardly".

b. Arguments

Gibson discloses a substantially circular icon or portion thereof, having a defined periphery, each portion of the defined periphery corresponding to one or more of the segments making up a panoramic image.

A circle, as is well known in the art, is the locus of all points in a plane at a fixed distance, called the radius, from a given point, the center. A circle is also a closed curve. The periphery or circumference of a circle is given by the well-known formula, circumference $= 2\pi \cdot r$, where the circumference increases linearly with the radius.

In contrast, a spiral is a non-linear open curve that emanates from a central point, getting progressively farther away as it revolves around the central point. The spiral trough of the present invention facilitates displaying a very large number of ordered items in a manner that cannot be accomplished by Gibson's circular scrollcurve, as shown by the following example.

The circular scrollcurve of Gibson merely multiplies the maximal length of the scrollbar linearly by a factor of π times the height of the display. Referring to the exemplary use of linear scrollbars given by paragraph [0009] (discussed above in response to the 35 U.S.C. §101 rejection), assume again a very large list, L , of 1,048,576 items and further assume the display height remains at 512. The maximum circular circumference that may be displayed by Gibson's circular scrollcurve (using pixels as a unit of length for this exemplary approximation) is thus, $2\pi \cdot 512/2$ items or pixels ≈ 1607.68 items or pixels. Thus, according to the equation of paragraph

[0007] with the linearly increased scrollbar length of 1607.68 substituted for W_s , a movement of one pixel, the shortest movement possible, along the circumference of Gibson's circular scrollcurve, with c_s again equal to 64, would correspond to scrolling by approximately 678 ($db \approx 678$) items through the list. Again, the fact that the circular scrollcurve of Gibson is linear and limited in size (i.e., to $\pi \cdot$ height of display) makes it impossible to scroll a very large document, because some portions of the document will not be shown to the user with even the smallest possible movement of the scrollbar.

In contrast, the spiral trough of the spiral scrollbar is an open curve and may represent a very large list of items or document lines by utilizing more than one turn about the center point. In fact, Fig. 2A of the Specification of the present invention illustrates such a multiple turn spiral trough. The open curve of a spiral, in effect, allows multiple 360° revolutions (and parts thereof) to represent very long lists of items or very long documents.

Furthermore, since the radius of the circular scrollcurve of Gibson is fixed, it is impossible to perform "rotating said thumb region inwardly on said spiral trough allows more rapid scrolling through said entire ordered list, when compared to rotating said thumb region outwardly", as recited in claims 1 and 24 of the present invention, or to perform "rotating said thumb manipulator inwardly on said spiraling trough allows more rapid scrolling through said entire ordered list, when compared to rotating said rotatable thumb outwardly", as recited in claim 12 of the present invention. Rotation around the circular scrollcurve of Gibson does not allow for movement in a radial direction. In contrast, the spiral trough of the present invention allows more rapid scrolling with inward (toward the center) rotation of the thumb and slower scrolling with outward (toward the periphery) rotation of the thumb.

For at least the reasons outlined above, Applicant respectfully submits that Gibson does not disclose, teach or suggest every feature of currently amended independent claim 1 and currently amended dependent claims 2, 3, 5-7, 9, and 10.

2. The Schirmer Reference

a. Schirmer's Disclosure

Schirmer discloses a graphical control device including rollerballs having a border defining an active central region. The speed with which the selected value scrolls is dependent upon the active region of the rollerball currently selected. The rollerball device has an active region characterized by a peripheral border surrounding central interior region. Values associated with the data entity may be scrolled through at a rate, which increases nonlinearly as the selected portion of the active region progresses from the central interior region toward the peripheral border. (col. 4, lines 35-45, which is cited by the Office Action).

Schirmer also discloses that a group of rollerballs may be used to represent a set of operations, or set of menus. A group of rollerballs, which can also be used to represent a given object's properties, is arranged in a spiral configuration to form a compact and easy to navigate set of choices for the user. (col. 4, lines 46-50, which is cited by the Office Action).

Schirmer further discloses that moving the cursor from the outer edge of the active region [of a rollerball] toward the center 340 causes the values to scroll within the display at a decreasing rate, as depicted by the scroll speed arrow 360. Moving the cursor from the center 340 of the active region toward the outer ring either left, right or upward causes the property values to scroll at an increasing rate. (col. 9, line 66 to col. 10, line 5; Fig. 3).

Currently amended, independent claim 1 recites in relevant part,
"corresponding an entire ordered list of items in a computer application to a spiral trough of said spiral scrollbar

...

wherein rotating said thumb region inwardly on said spiral trough allows more rapid scrolling through said entire ordered list, when compared to rotating said thumb region outwardly".

b. Arguments

Schirmer discloses a group of rollerballs arranged in a spiral, in which a selected rollerball of the group of rollerballs may perform the function of scrolling. The selected rollerball for a scrolling function may non-linearly increase the rate of scrolling by moving a cursor from the

central interior region toward the outer ring of the selected rollerball either left, right or upward causing the property values to scroll at an increasing rate. Alternatively, moving the cursor from the outer edge of the active region of the selected rollerball toward the center causes the values to scroll within the display at a decreasing rate.

Schirmer does not cure the deficiencies of Gibson. Although Schirmer discloses a spiral arrangement of rollerballs, each roller ball may serve a different function. Thus, Shirmer discloses a selected rollerball from group of spirally arranged rollerballs that has the function of scrolling. Within the selected rollerball, moving a cursor outwardly from a central region causes the rate of scrolling to decrease, while moving the cursor from the periphery towards the center causes the scrolling rate to decrease.

In contrast, the present invention describes a spiral trough in which a thumb is located. In the present invention, rotating the thumb inwardly causes the rate of scrolling to increase through the more "tightly" wound inner spiral turns, while rotating the thumb outwardly causes the rate of scrolling to decrease through the more "loosely" wound outer spiral turns.

Schirmer does not disclose, teach or suggest analogous features to the spiral trough and a thumb "sliding along" the spiral trough of the present invention. Instead, Shirmer discloses that moving a cursor in an outward direction within a selected rollerball will cause a non-linear increase in a scrolling rate, while moving the cursor in an inward direction will cause a decrease in the scrolling rate.

Furthermore, nowhere does Schirmer disclose, teach or suggest a display that indicates the size of a list or document through which the user is scrolling. In the present invention, the length of the spiral trough is proportional to the number of items in the entire ordered list of items or to the number of lines in a document, while the length of the thumb is directly proportional to the number of contiguous items or contiguous lines of a document that are displayed.

For at least the reasons outline immediately above in regard to Schirmer and to the reasons outlined above in regard to Gibson, Applicant respectfully submits that Gibson and Schirmer, either independently or in combination, do not disclose, teach or suggest the present

invention's claimed features of "corresponding an entire ordered list of items in a computer application to a spiral trough of said spiral scrollbar ... wherein rotating said thumb region inwardly on said spiral trough allows more rapid scrolling through said entire ordered list, when compared to rotating said thumb region outwardly", as recited in currently amended, independent claim 1. Accordingly, Gibson and Schirmer, either independently or in combination, fail to render obvious the subject matter of currently amended independent claim 1 and currently amended dependent claims 2, 3, 5-7, 9 and 10 under 35 U.S.C. §103(a). The rejection of canceled claims 4 and 8 is moot. Withdrawal of the rejection of claims 1-10 under 35 U.S.C. §103(a) as unpatentable over Gibson and Schirmer is respectfully solicited.

B. The 35 U.S.C. §103(a) Rejection over Gibson, Blades and Schirmer

1. The Blades Reference

a. Blades' Disclosure

Blades discloses in Fig. 4A, a peripheral section 402 containing two command rings, command ring 414 and command ring 416. These command rings include various functions that may be selected by a user manipulating rotatable scroll bar 404 with a mouse. A scroll bar head 408 is associated with command ring 416 and scroll bar tail 410 is associated with command ring 414. A function, such as, for example, "COPY", may be selected by a user when scroll bar tail 410 is selected and rotated such that scroll bar tail 410 points to the section or portion of command ring 416 labeled as COPY. Functions in command ring 414 may be chosen when a user selects scroll bar head 408 and rotates it to point to a desired function. Slider 412 is utilized to control the selected function. (col. 7, lines 16-29, which is cited by the Office Action).

Currently amended, independent claim 1 recites in relevant part,
"corresponding an entire ordered list of items in a computer application to a spiral trough
of said spiral scrollbar

...

wherein rotating said thumb region inwardly on said spiral trough allows more rapid
scrolling through said entire ordered list, when compared to rotating said thumb region

outwardly".

Similarly, currently amended, independent claim 12, recites in relevant part,
"corresponding an entire ordered list of items to a spiraling trough, progressively winding tighter from an outer periphery region towards a geometric center of said spiraling trough

...

wherein rotating said thumb manipulator inwardly on said spiraling trough allows more rapid scrolling through said entire ordered list, when compared to rotating said rotatable thumb manipulator outwardly".

b. Arguments

Blades does not cure the deficiencies of Gibson and Schirmer above. Blades discloses a graphic display including outer and inner, concentric command rings, in which portions of each command ring are associated with various functions. Selection of a function is accomplished by rotating a bar about the center of the concentric command rings and associating one end of the bar (e.g., the head) with the inner concentric command ring and associating the other end of the bar (e.g., the tail) with the outer concentric command ring. Although Blades refers to the rotatable bar as a "scrollbar" and even describes a slider associated with the "scrollbar", nowhere does Blades disclose, teach or suggest the function of scrolling through a list of items or lines of a document, as does the present invention.

Furthermore, nowhere does Blades disclose, teach or suggest analogous features to the spiral(ing) trough and a rotatable thumb manipulator causing a thumb "to slide along" the spiral(ing) trough of the present invention. Instead, Blades discloses rotating a bar about a central point to select a function, located on one of two concentric rings and associated with either a head or a tail of the rotatable bar.

In addition, nowhere does Blades disclose, teach or suggest a display that indicates the size of a list or document through which the user is scrolling. In fact, Blades does not describe scrolling at all. In the present invention, the length of the spiral(ing) trough is proportional to the number of items in the entire ordered list of items or to the number of lines in a document, while the length of the thumb is directly proportional to the number of contiguous items or contiguous

lines of a document that are displayed.

For at least the reasons outlined immediately above in regard to Blades and for the reasons outlined above in regard to Gibson and Schirmer, Applicant respectfully submits that Gibson, Blades, and Schirmer, either individually or in combination, do not disclose, teach or suggest the present invention's claimed features of "corresponding an entire ordered list of items in a computer application to a spiral trough of said spiral scrollbar ... wherein rotating said thumb region inwardly on said spiral trough allows more rapid scrolling through said entire ordered list, when compared to rotating said thumb region outwardly", as recited in currently amended independent claim 1, and "corresponding an entire ordered list of items to a spiraling trough, progressively winding tighter from an outer periphery region towards a geometric center of said spiraling trough ... wherein rotating said thumb manipulator inwardly on said spiraling trough allows more rapid scrolling through said entire ordered list, when compared to rotating said rotatable thumb manipulator outwardly", as recited in currently amended independent claim 12. Accordingly, Gibson, Blades, and Schirmer, either independently or in combination, fail to render obvious the subject matter of currently amended independent claims 1 and 12 and currently amended dependent claims 11, 13-15, 17-19, 21, and 22 under 35 U.S.C. §103(a). The rejection of canceled claims 16, 20, and 23 is moot. Withdrawal of the rejection of claims 11-23 under 35 U.S.C. §103(a) as unpatentable over Gibson, Blades, and Schirmer is respectfully solicited.

C. The 35 U.S.C. §103(a) Rejection over Gibson and Blades

With respect to the rejection of claims 24-35, the Office Action states that Gibson discloses a method and system for a non-linear scrollbar, but does not explicitly disclose corresponding a non-linear scrollbar to a list of items in a computer application. (Office Action, page 13, printed lines 1-3). The Office Action then states that Gibson does disclose a non-linear periphery region that corresponds to one or more segments making up a panoramic image (col. 2, lines 46-54). (Office Action, page 13, printed lines 3-5).

As discussed above, Gibson discloses a substantially circular icon or portion thereof, having a defined periphery, each portion of the defined periphery corresponding to one or more

of the segments making up a panoramic image. The circumference or periphery is, of course, a linear function of the circular icon's radius, i.e., $C = 2\pi r$. Therefore, Gibson is improperly analogized to the spiral scrollbar of the present invention, which is a non-linear function of radius.

The Office Action further states that Blades discloses a similar method and system for a non-linear scrollbar, that further discloses various functions that are separated by partitions (col. 7, lines 16-31; Fig. 4A). (Office Action, page 13, printed lines 14-16).

Fig. 4A of Blades shows various functions associated with the two peripheral command circular rings. However, the spiral trough of the present invention corresponds to "an entire ordered list of items in a computer application", as recited in currently amended independent claim 24, and not to the various functions of Blades, e.g., SAVE AS, OPEN, CLOSE, etc.

For at least the reasons outlined above in regard to Blades and for the reasons outlined above in regard to Gibson, Applicant respectfully submits that Gibson and Blades, either individually or in combination, do not disclose, teach or suggest the present invention's claimed features of "corresponding an entire ordered list of items in a computer application to a spiral trough of said spiral scrollbar ... wherein rotating said thumb region inwardly on said spiral trough allows more rapid scrolling through said entire ordered list, when compared to rotating said thumb region outwardly", as recited in currently amended independent claim 24. Accordingly, Gibson and Blades, either independently or in combination, fail to render obvious the subject matter of currently amended independent claim 24 and currently amended dependent claims 25-27, 29-31, and 33-35 under 35 U.S.C. §103(a). The rejection of canceled claims 28 and 32 is moot. Withdrawal of the rejection of claims 24-35 under 35 U.S.C. §103(a) as unpatentable over Gibson and Blades is respectfully solicited.

III. Formal Matters and Conclusion

Claims 1-3, 5-7, 9-15, 17-19, 21, 22, 24-27, 29-31, and 33-41 are pending in the application.

Applicant respectfully submits that entry of the claims is proper because the claims will either place the application in condition for allowance or in better form for appeal.

Applicant respectfully submits that the claims are currently amended fulfill the requirements of 35 U.S.C. §101.

With respect to the prior art rejections of the claims, Applicant respectfully submits that the currently amended claims are patentably distinct from the prior art of record.

In view of the foregoing, Applicant submits that claims 1-3, 5-7, 9-15, 17-19, 21, 22, 24-27, 29-31, and 33-41, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest time possible.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0441.

Respectfully submitted,

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/Peter A. Balnave/
Peter A. Balnave, Esq.
Registration No. 46,199

Gibb & Rahman, LLC
2568-A Riva Road, Suite 304
Annapolis, MD 21401
Voice: (410) 573-5255
Fax: (301) 261-8825
Email: Balnave@Gibb-Rahman.com
Customer Number: 29154